

HIGH VOLTAGE ESD-PROTECTION STRUCTURE

ABSTRACT OF THE DISCLOSURE

A high voltage ESD-protection structure is used to protect delicate transistor circuits connected to an input or output of an integrated circuit bond pad from destructive high voltage ESD events by conducting at a controlled breakdown voltage that is less than a voltage that may cause destructive breakdown of the input and/or output circuits. The ESD-protection structure is able to absorb high current from these ESD events without snapback that would compromise operation of the higher voltage inputs and/or outputs of the integrated circuit. The ESD-protection structure will conduct when an ESD event occurs at a voltage above a controlled breakdown voltage of an electronic device, *e.g.*, diode, in the ESD protection structure. Conduction of current from an ESD event having a voltage above the electronic device controlled breakdown voltage may be through another electronic device, *e.g.*, transistor, having high current conduction capabilities, in the ESD-protection structure that may be controlled (triggered) by the device (*e.g.*, diode) determining the controlled breakdown voltage (at which the ESD voltage is clamped to a desired value). The high voltage ESD-protection structure may be located substantially under the bond pad and may also include a low capacitance forward diode structure between the bond pad and the ESD clamp circuit.